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(54) PRODUCTION OF SINTERED STEEL HAVING EXCELLENT MACHINABILITY

(57)Abstract:

PURPOSE: To improve the machinability of a sintered steel obtd. by specifying the contents of Mn and S of raw material iron and steel powder and adding powders of the sulfides of specific metals and graphite to the raw material powder at the time of producing the sintered steel by a powder metallurgical process using pure iron powder or alloy steel powder as the raw material.

CONSTITUTION: The Mn content in the iron and steel powder of the raw material is specified to 0.1% and the S content to 0.08 to 0.30% at the time of producing the sintered steel member by the powder metallurgical process using the pure iron powder or alloy steel powder produced by a water atomization as the raw material. In addition, ≥ 1 kinds of the powders of the metal sulfides, such as MOS_2 , WS_2 and SnS , having an average grain size 3 to $5\mu\text{m}$ and the powder of the graphite are added and mixed at 0.4 to 5% and lead stearate as a lubricant is added and mixed at about 1% to and with the powder. Such powder mixture is compression molded to a desired shape and is then sintered in a nitrogen atmosphere contg. hydrogen. Even though the FeS in the raw material is made to remain without reducing by the presence of the metal sulfide of the MOS_2 system in spite of sintering in hydrogen, the carburization by the graphite is prohibited and, therefore, the sintered steel which is not degraded in the machinability by the presence of the graphite is obtd.

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